

# TF Type Voltage Controlled Temperature Compensated Crystal Oscillator

## FEATURE

1. Frequency vs Temperature:  $\pm 1.0\text{ppm} @ -40^{\circ}\text{C} \sim +85^{\circ}\text{C}$ .
2. Pulling:  $\pm 20\text{ppm}$  max.
3. Aging:  $\pm 1\text{ppm}/\text{year}$ .
4. Good Phase Noise(Optional).
5. Stratum 3 (Optional).
6. Packing: 10 pcs per Tube.



## ORDERING INFORMATION

T	F	T	A	D	C	J	-	N	L	-	?
TCXO	Package (mm)	Supply Voltage(V) & Pin Form	Pulling Range (ppm)	Freq. Stability (ppm)	Temp. Range ( $^{\circ}\text{C}$ )	Output Logic and Symmetry	Dash	Appearance	Lead Free	Dash	Freq.(MHz)
	20.4x12.8	Gull Wing G:5.0 F:2.8~3.3  Through Hole T:5.0 E:2.8~3.3	A: $\pm 5$ B: $\pm 8$ C: $\pm 10$ D: $\pm 12$ E: $\pm 15$ F: $\pm 20$ T:TCXO	A: $\pm 0.5$ B: $\pm 1.0$ P: $\pm 1.5$ C: $\pm 2.0$ D: $\pm 2.5$ F: $\pm 4.0$ G: $\pm 5.0$	W: 0~+55 C:-10~+60 I: 0~+70 E:-20~+70 H:-30~+75 U:-40~+85	10TTL 15pF CMOS 15pF CMOS 50pF S: Clipped Sine@10K $\Omega$ /10pF		50 $\pm 5\%$ A J F	N:Normal L:Not RoHS Compliant		xx.xxxxxx

### Ordering Example: TFTADCJ-NL-10.000000 MHz

VCTCXO F-TYPE;  $V_{DD}$ : 5V; Pulling Range:  $\pm 5\text{ppm}$ ; Freq. Stability:  $\pm 2.5\text{ppm}$ ; Temp. Range:  $-10^{\circ}\text{C}$  to  $+60^{\circ}\text{C}$ . CMOS 15pF, Duty:50 $\pm 5\%$ ; Normal Appearance; Not RoHS Compliant; Freq. 10.000000MHz.

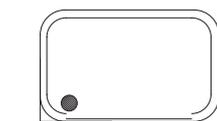
## FREQ. STABILITY vs. TEMP. RANGE

Temp.( $^{\circ}\text{C}$ )	ppm	A: $\pm 0.5$	B: $\pm 1.0$
W	0~ +55	$\triangle$	$\circ$
C	-10~ +60	X	$\circ$
E	-20~ +70	X	$\circ$
U	-40~ +85	X	$\circ$

$\circ$ : Standard     $\triangle$ : Available (case by case)    X: Not available

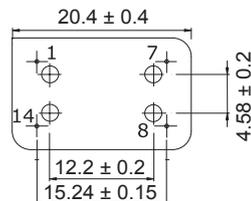
## OUTLINE DRAWING

[ TOP VIEW ]



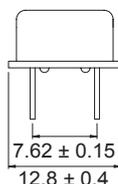
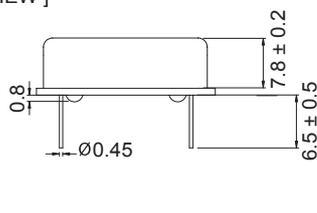
Pin 1 Symbol

[ BOTTOM VIEW ]



Pin	Function
#1	Vcon / NC
#7	GND
#8	Output
#14	$V_{DD}$

[ SIDE VIEW ]



UNIT : mm

VCTCXO / TCXO

## ELECTRICAL SPECIFICATION

Parameter	Min.		Max.		Unit
	5.0	2.8	5.0	2.8	V
<b>Supply Voltage Variation(V<sub>DD</sub>) 5%</b>	4.75	2.66	5.25	2.94	V
<b>Frequency Range (for TTL/CMOS output)</b>	1.25		36		MHz
<b>Frequency Range (for Clipped Sine output)</b>	10		36		MHz
<b>Operating Temp. Range</b>	Refer to Ordering Information				°C
<b>Frequency Stability</b>	Refer to Ordering Information				ppm
<b>Frequency Stability</b>					
Vs Supply Voltage(±5%) change	—		±0.2		ppm
Vs Load(±10%) change	—		±0.2		
Vs Aging	—		±1.0		ppm/year
<b>Supply Current (for TTL/CMOS output)</b>					
1.2500MHz ≤ F <sub>o</sub> < 10.000MHz	—		10	7	mA
10.000MHz ≤ F <sub>o</sub> < 15.000MHz	—		15	10	
15.000MHz ≤ F <sub>o</sub> < 26.000MHz	—		20	15	
26.000MHz ≤ F <sub>o</sub> < 36.000MHz	—		25	20	
<b>Supply Current (for Clipped Sine output)</b>					
10.000MHz ≤ F <sub>o</sub> < 15.000MHz	—		1.5		mA
15.000MHz ≤ F <sub>o</sub> < 26.000MHz	—		2.0		
26.000MHz ≤ F <sub>o</sub> < 36.000MHz	—		2.5		
<b>Output Level (TTL/CMOS output)</b>					
High Level("1")	90% V <sub>DD</sub> or 2.4V		—		V
Low Level ("0")	—		10% V <sub>DD</sub> or 0.4V		
Duty	40%		60%		
<b>Output Level (for Clipped Sine output )</b>	0.8		—		Vp-p
<b>Vc Input Impedance</b>	100				KΩ
<b>Phase Noise @13.0MHz</b>					
100Hz			-115		dbc/Hz
1KHz			-135		
10KHz			-148		
<b>Start Time</b>	—		2		mSec
<b>Storage Temp. Range</b>	-55		125		°C